# PATENT COOPERATION TREATY



## PCT

## NOTIFICATION OF TRANSMITTAL OF COPIES OF TRANSLATION OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 72.2)

From the INTERNATIONAL BUREAU

To:

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| | |
|---|---|
| **Date of mailing** (day/month/year)<br>09 January 2002 (09.01.02) | |
| **Applicant's or agent's file reference**<br>1999/G014 | **IMPORTANT NOTIFICATION** |
| **International application No.**<br>PCT/EP00/05759 | **International filing date** (day/month/year)<br>21 June 2000 (21.06.00) |
| **Applicant**<br>TICONA GMBH et al | |



**1. Transmittal of the translation to the applicant.**

The International Bureau transmits herewith a copy of the English translation made by the International Bureau of the international preliminary examination report established by the International Preliminary Examining Authority.

**2. Transmittal of the copy of the translation to the elected Offices.**

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following elected Offices requiring such translation:

JP,KR,US



The following elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

EP



**3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).**

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report.

**It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.**

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Translation

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

| Applicant's or agent's file reference 1999/G014 | FOR FURTHER ACTION | See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) |
|---|---|---|
| International application No. PCT/EP00/05759 | International filing date (*day/month/year*) 21 June 2000 (21.06.00) | Priority date (*day/month/year*) 30 June 1999 (30.06.99) |
| International Patent Classification (IPC) or national classification and IPC C08L 23/04, C08F 232/00 | | |
| Applicant TICONA GMBH | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

| Date of submission of the demand | Date of completion of this report |
|---|---|
| 10 January 2001 (10.01.01) | 16 August 2001 (16.08.2001) |
| Name and mailing address of the IPEA/EP<br><br>Facsimile No. | Authorized officer<br><br>Telephone No. |

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/EP00/05759

## I. Basis of the report

1. With regard to the **elements** of the international application:*

☐ the international application as originally filed

☒ the description:

pages 1-19 , as originally filed
pages _____ , filed with the demand
pages _____ , filed with the letter of _____

☒ the claims:

pages _____ , as originally filed
pages _____ , as amended (together with any statement under Article 19
pages _____ , filed with the demand
pages 1-12 , filed with the letter of 25 July 2001 (25.07.2001)

☒ the drawings:

pages 1/2,2/2 , as originally filed
pages _____ , filed with the demand
pages _____ , filed with the letter of _____

☐ the sequence listing part of the description:

pages _____ , as originally filed
pages _____ , filed with the demand
pages _____ , filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/fig _____

5. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

I. **Basis of the report**

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

Continuation of: Box I.5.

1. Apart from the fact that the viscosity ratio of at least two amorphous polyolefins of different molar weights cannot be smaller than 0.005 ***and*** greater than 4 (what would be correct would be smaller than 0.005 ***or*** greater than 4), the addition of the viscosity ratio in Claim 1 contravenes PCT Article 34(2)(b), since this amendment goes beyond the disclosure in the international application as filed. The viscosity ratio mentioned on page 1 relates to the prior art and not to the method as per the present application. The application contains no basis for transferring the prior art value to the method as per Claim 1. In addition, the prior art refers to subsidiary and main components of the mixture. Claim 1 of the present application contains no information on the proportions of the polymers.

2. When the reactors are connected in parallel, it is not important in which reactor the amorphous polyolefin with a high molar weight is produced. When connected in series, the sequence of the reactors is, however, decisive. Page 11, lines 22-25 of the description states that the amorphous polyolefin with a high molar weight is produced in the ***first*** reactor. This sequence is not taken into consideration in the amended Claim 1. The present application, however, contains no basis for any sequence in a series

I. **Basis of the report**

1. This report has been drawn on the basis of *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.)*:

connection (PCT Article 34(2)(b)).

3. The basis for method elements a) and b) added to Claim 1 can be found on pages 11 and 12. Nevertheless, the description specifies the method as being only for amorphous polyolefins with a high molar weight of VZ > 100 ml/g and $M_w$ > 100 000 g/mol. These parameters are not specified in the amended Claim 1. There appears to be no basis for such a generalisation (PCT Article 34(2)(b)).

V. **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

| | | | |
|---|---|---|---|
| Novelty (N) | Claims | 4, 5 | YES |
| | Claims | 1-3, 6-12 | NO |
| Inventive step (IS) | Claims | | YES |
| | Claims | 1-12 | NO |
| Industrial applicability (IA) | Claims | 1-12 | YES |
| | Claims | | NO |

2. Citations and explanations

1. Reference is made to the following documents:

D1: EP-A-0 407 870 (cited on page 8 of the application)
D2: US-A-5 658 992
D3: DE-A-196 33 641.

2. The examination of novelty and inventive step can be based only on the original Claim 1, since the amended Claim 1 does not meet the requirements of PCT Article 34(2)(b) (see Box I).

3. Claim 1 relates to a method for producing a bimodal or multimodal mixture of amorphous polyolefins by mixing different amorphous polyolefins in solution.

A person skilled in the art is aware from D1 (page 12, lines 46-55) that amorphous cycloolefin polymers can form a polymer alloy with other polymers. This process occurs either in the melt or in solution. In Example 48 of D1, a polymer alloy is produced from two different amorphous cycloolefin polymers with a VZ of 65 and 110 $cm^3/g$ by kneading. The alloy obtained is transparent and has only one

glass stage at 149°C, i.e. the alloy is homogeneous. Consequently, the overall content of the application (Example 48 in combination with page 12, lines 46-55) is prejudicial to the novelty of the subject matter of Claims 1-3 and 6-12.

4. Even if novelty could be established for Claim 1, the subject matter of the present application appears not to involve an inventive step.

4.1 The difference in the molar weights of the starting components is not important in the method as per Claim 1, i.e. the method also comprises the mixing of two amorphous polyolefins with slightly different molar weights. As indicated by the applicant on page 1 of the application, the mixing of two amorphous polyolefins with little difference in their molar weights involves no difficulties for a person skilled in the art and occurs in the melt. At least in this case, mixing in solution is a non-inventive alternative that is known to a person skilled in the art from D1.

4.2 Even if there is a clear difference in the viscosity number, it is questionable whether Claim 1 taken as a whole involves an inventive step. Mixing in solution appears to involve an advantage over mixing in the melt only when the quantity ratios are precisely defined. In Example 48 of D1, mixing in the melt of 50 wt.% of a polymer with a high molecular weight and 50 wt.% of a polymer with a low molecular weight produces a transparent, homogeneous alloy. The difficulties mentioned by the applicant in the description clearly do not occur. This is confirmed by comparative Example 3 of the present

application. In said example also, a transparent, homogeneous product is obtained by melting a 1:1 mixture of materials with clearly different viscosity numbers (85 and 15). It is therefore clear that mixing in solution does not have any technical advantages over mixing in the melt, at least not over the entire range claimed. In these cases, mixing in solution is an obvious alternative, and therefore the present claims do not involve an inventive step over the entire range claimed (PCT Article 33(3)).

5. Documents D2 and D3 which are listed in the international search report appear to be less relevant, since the polyethylenes mentioned in D2 are not amorphous and the elastomers described in D3 appear to have at least crystalline regions.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/EP 00/05759

**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

The page numbering for the figures is incorrect. Although there are three figures, they appear on only two sheets. The correct numbering would be 1/2 and 2/2.